

# JOURNAL

OF THE

## ASIATIC SOCIETY OF BENGAL.



### Part II.—PHYSICAL SCIENCE.

No. III.—1878.

VII.—*Notes on some Reptilia from the Himalayas and Burma.*—By  
W. T. BLANFORD, F. R. S., &c.

(Read 5th June.)

The species described in the following pages are chiefly from a very interesting collection made by Mr. W. Davison in the Tenasserim provinces. One snake is from another collection made in Sikkim by Mr. Gammie.

DRACO MAJOR, sp. nov.

*D. peraffinis D. dussumieri, naribus superne versatis, pede posteriore axillam haud attingente; tympano nudo; tuberculo parvo utrinque superne post supercilium oriente, cristâ nuchali nullâ; sed multo major, appendiculâ gulari longâ squamis majoribus indutâ, nonnullis squamis majusculis distantibus in lineâ unicâ interruptâ laterali ad insertionem alæ collocatis, nec aggregatis; alis aliter coloratis, fusco-transfasciatis, vel omnino pariter marmoratis nec versus margines saturatoribus.*

Hab. in provinciâ Tenasserim, haud procul ab urbe Tavoy atque ad radices montis Nawiabu dicti.

*Description.* The hind limb falls a little short of the axil, when laid forwards. Nostrils directed upwards, tympanum naked. Upper labials large, some of them exceeding the nasal shield in length. A small tubercle above at the hinder extremity of the orbit. No crest of enlarged scales. Dorsal scales sub-equal in size, not keeled, a few much larger scales, usually at a considerable distance apart, in a single interrupted row along each side

of the back at the insertion of the wing. Gular appendage covered with large scales, each fully twice as long and broad as the scales of the abdomen. Abdominal scales keeled. A fringe of large pointed triangular scales, many of them nearly equal to the tympanum in breadth, along the hinder part of the thigh and each side of the basal portion of the tail. Tail triangular near the base, with a row of slightly enlarged and sharply keeled scales along its upper edge. Scales below the tail, near the base, but not just behind the anus, larger than those at the sides.

The colouration above in spirit is nearly uniform, the wings are marked with very distinct dusky cross bands, broken up by light spots in the only female collected, but these markings are less distinct or wanting in the males, in which the wings are mottled with pale irregular spots. In some the wings are rather darker near the margins, but this is not so distinct as in *D. dussumieri*, and there is never the dark fringe with narrow sub-parallel pale transverse lines of that species. Throat unspotted, greenish yellow in spirit, pale scarlet beneath the lateral appendages.

This is probably the largest species of the genus known. The largest specimen, a male, measures 14 inches in extreme length, of which the head and body from nose to anus measure 4.75. Two other males have the body of the same length, the tail being about an inch shorter. A female is less in all its dimensions, nose to anus 3.5, tail 5.75. The sex has been ascertained by dissection. In the female the gular appendage is very short. From the condition of the ovary the specimen is probably adult. All the examples captured were obtained in the forest east of Tavoy, two being from the foot of Nawlabú hill, a high ridge some eight miles east from Tavoy town.

The nearest described species are *D. quinquefasciatus* of Penang and *D. dussumieri* of Malabar, and strange to say the latter, although so widely removed in locality, is the more closely allied of the two in structure. The present form is distinguished from both by its much larger size and from *D. quinquefasciatus* by its naked tympanum and longer hind limbs. From *D. dussumieri*, *D. major* is known by having much larger supra-labials, each plate near the middle of the lip on each side exceeding the nasal in length, by the enlarged scales at the sides being single and not aggregated into groups, by the much larger scales on the gular sac, and by the colouration of the wings.

Besides the new form, *D. maculatus* and a species which is probably *D. teniopterus* were obtained in the same forest. The typical specimen of the last named species, a male from Chartaboum, was said by Dr. Gunther,\* who described it, to have a very low nuchal crest and no tubercle above the orbit. Now in two males of the Tenasserim dragon, there is a

\* Rept. Brit. Ind., p. 126.

small tubercle above the orbit and there is no nuchal crest, but as in one specimen there is a longitudinal row of scales very slightly larger than the others along the back of the neck, and as the supra-orbital tubercle is small, these characters may be variable, and I hesitate to separate the species upon such slight data without actual comparison. Still it is not quite certain that the Tenasserim lizard is the true *D. taniopterus*.

BRONCHOCELA BURMANA, sp. nov.

*B. omnino viridis, affinis B. cristatellæ, B. molluccanæque, sed squamis lateralibus minoribus, in series longitudinales ad 25 dispositis, serie dorsali parum majore, cristâ nuchali parvulâ, scutis majoribus post supercilium nullis.*

Hab. ad Tavoy in Tenasserim.

*Description.* Scales of the sides of moderate size, smaller than in *B. cristatella*, larger than in *B. jubata*, in about 23 to 25 longitudinal rows, fewer behind, scales of the abdomen much larger, in about 12 rows, all sharply keeled. Dorsal row of scales distinctly larger than those of the sides, nuchal crest very low, formed of a series of triangular flat spines, passing between the shoulders into the dorsal row of scales. No fold before the shoulder. There are no enlarged scales behind the superciliary ridge, all the scales between the eye and tympanum are nearly similar, those in the middle are a little larger than the others, but there is no distinctly enlarged scale. The hind limb, laid forwards, does not quite extend to the end of the snout, the fore limb extends to the thigh, the fourth hind toe is one-fifth longer than the third. Colour grass green throughout, paler below, no dark patches nor yellow bands on the body. On the top of the head, the supra-orbital regions are surrounded by slightly enlarged scales of a dusky purplish colour, but this may be individual or due to change of tint in spirit.

This species is at once distinguished from *B. cristatella* (and from *B. molluccana* if that be really different)\* by its larger lateral scales, by its much lower nuchal crest and by the absence of any enlarged scales behind the supercilium. From *B. jubata*, on the other hand, the present form may be known by the lateral scales being larger, as well as by the want of enlarged scales behind the supercilium. There is no specimen of *B. smaragdina*† in Calcutta for comparison, but that species has evidently much larger lateral scales, no true nuchal crest, longer limbs, different colouration, and very much larger scales on the throat, for there are said to be only 16 series between the angles of the mouth, whereas in *B. burmana* there are double that number.

\* Stoliczka, J. A. S. B., XXXIX, Pt. II, p. 179.

† Günther, Rept. Brit. Ind., p. 138.

The only specimen of *Bronchocela* collected by Mr. Davison was procured near Tavoy. The size is about the same as that of other species; from nose to anus 3·7 inches, tail about 12 inches when perfect.

#### LIOLEPIS GUTTATUS.

Mr. Davison's description of the habits of this lizard, of which he has procured several specimens, supplements Mr. Theobald's.\* All the specimens procured were found in perfectly open places devoid of vegetation, a favourite position being in the hard threshing floors made in the middle of dry rice-fields. Here *Liolepis* makes its burrow and is seldom found far away from the mouth of its hole. This appears to confirm Mr. Theobald's opinion that *Liolepis* never ascends trees, as Cantor supposed.

Mr. Theobald classed together *Uromastix*, *Liolepis* and *Phrynocephalus*, in a distinct family, which he called *Uromasticidæ*. The distinction of the family has been accepted by other naturalists, and so far as the genus *Uromastix* is concerned, has some important structural peculiarities in its favour, but I have already given my reasons† for dissenting from Mr. Theobald's views as to the alliance between *Uromastix* and *Phrynocephalus*, and I now feel some doubt as to whether there is any close connexion between *Liolepis* and *Uromastix*, despite the circumstance that both burrow, and that there is some slight similarity in their habits. *Liolepis* wants the peculiar dentition of *Uromastix* and is no more exclusively herbivorous than *Stellio*. I have examined the stomachs of three specimens of *Liolepis*: in one I found nothing except insects, (chiefly crickets and termites,) whilst in the other two there was a mixture of insects and vegetable substances, fragments of small fruits and apparently of leaves. The intestinal tract is much shorter than in *Uromastix*; in a specimen of *L. guttatus* 16½ inches long, the whole length of the stomach and intestine (preserved in spirit) is 16 inches. In *Uromastix* the length of the intestine is much greater than that of the body and tail; in a fresh specimen of *U. hardwickei*, measuring 12½ inches, the intestinal tract was 27 inches long. In a large example of the Mesopotamian *U. microlepis*, preserved in spirit and 17 inches in length, the intestinal tract was also 27 inches long. Moreover, in *Uromastix* the form of the cæcum is different, and much more complicated than in *Liolepis*, in which there is simply an expansion of the intestine.

#### ULUPE, ‡ gen. nov. *Lycodontidarum*.

*Corpus gracile, compressum. Caput breve, depressum, collo paulò latius. Oculi pupilla elliptica, verticalis. Scutum loreale cum præoculari*

\* Jour. Lin. Soc. X, p. 34. Descriptive Catalogue, Rept. Brit. Ind., p. 119.

† Eastern Persia, II, p. 334, note.

‡ Etym. Ulúpi, a princess of the Nágas or serpents, mentioned in the Mahá Bhárata.

*junctum*; *nasale haud bipartitum*. *Squamæ corporis in tredecim serièbus longitudinalibus, læves, ventrales ad latera angulatæ, subcaudales biserialim ordinatæ.*

ULUPE DAVISONI, sp. nov.

*U. scutis præfrontalibus cum postfrontalibus longitudine fere æqualibus, verticali mediocri, occipitalibus duplo majoribus; loreali longo ad oculum attingente; præoculari alio nullo, postoculari unico; supralabialibus 7, tertio quartoque infraorbitalibus; ventralibus 265, anali integro; subcaudalibus 108; superne nigra, albo-transfasciata, annulis antice latioribus atque magis distantibus, subtus albida.*

*Hab. in provinciâ Tenasserim Burmanicæ, haud procul ab urbe Tavoy.*

*Description.* Body, slender, compressed. Head a little broader than the neck, short, depressed. Pupil elliptical, vertical. Shields of head regular, nostril in a single shield; loreal and præocular united. Scales of body smooth, in 13 rows. Ventrals 265, strongly angulate at the sides, anal undivided, subcaudals in 108 pairs. Maxillary teeth few in number, a space behind the anterior tooth, followed by three or four teeth close together, the two anterior rather the longest; mandibular teeth small.

*Head shields.*—Rostral much broader than high, scarcely extending to the upper surface of the head. Anterior frontals as long and nearly as broad as the posterior, the anterior edges of the former meeting at a slight angle directed backwards, and each anterior edge being about equal to the suture between the two shields. Vertical of moderate size, about half of an occipital, the sides convex, curving gently towards each other at first, more rapidly behind. Occipitals rounded behind. Nostril small, rather nearer to the anterior than to the posterior extremity of the nasal shield, which is much longer than high, and has only one shield, of about the same shape, and apparently consisting of the loreal and præocular united, between it and the eye. No other præocular is present; one postocular; the superciliary descends on the side of the head before and behind the eye. Upper labials 7, the 3rd and 4th forming the lower edge of the orbit; temporals 1 + 2.

*Colour* in spirit, above black with white cross-bands, each about a third of the width of the intervening dark space, becoming broader on the sides; lower parts white; so the colour may be described as white with large black spots above. The white rings and black interspaces are broadest near the head and become much narrower behind, and still narrower on the tail, but the proportion of the two colours remains the same. On the single specimen collected there are 36 white rings on the body, 26 on the tail, the last being terminal. The white sides and lower parts, on the hinder part of the body and the tail, are spotted and mottled with dusky. Head,

blackish above, but with a white band on each side from the white sides of the neck passing over each occipital to the superciliary shield, the two bands being only separated by a narrow dusky space behind the vertical. Lower portion of upper labials white.

A single specimen of this interesting snake was obtained by Mr. Davison at the foot of Nawlabú Hill, east of Tavoy, in evergreen forest, at an elevation of about 1,500 feet above the sea. This specimen measures 28 inches, of which the tail is 6.

It appears to me that this snake must be considered the type of a new genus of *Lycodonts*, distinguished from all other Indian forms by the small number of scales round the body. The single nasal shield, the union of the præocular and loreal, and the strongly angulated ventral shields are also a peculiar combination of characters, although all are found in some other genera of the same family.

OPHITES GAMMIEI, sp. nov.

*O. squamis corporis in 19 series longitudinales ordinatis, dorsalibus carinatis, lateralibus lævibus; scutis præfrontalibus pariter longis atque latis, postfrontalibus tripliciter majoribus; verticali vix longiore quam lato, lateribus convexis; loreali parvo, longiore quam alto; præoculari unico, postocularibus duobus; supralabialibus 8, tertio, quarto, quintoque infraorbitalibus; ventralibus 214, anali integro, subcaudalibus 101. Color fuscus, annulis antice albidis, postice griseis, marginibus irregularibus, variegatus.*

Hab. in Sikkim.

*Description.* Scales of the body in 19 rows, the 9 dorsal rows keeled, 5 rows at each side smooth. Body slender, compressed, head rather broader, flat. Eye small, pupil apparently vertical. Ventrals 214, bluntly angulate at the sides, anal entire, subcaudals 101 pairs.

*Head shields.*—Rostral about as broad as high. Nostril large, between two nasals, but scarcely separate from the anterior frontal. Anterior frontals small, each about one-third of a postfrontal and about as broad as long; postfrontals much broader in the middle than they are in front or behind, their anterior and posterior outer corners being hollowed out to receive the nasal and præocular shields, between which each postfrontal is bent over the side of the head above the small loreal. Vertical very little longer than broad, with convex sides. Each occipital is about twice as large as the vertical, rather attenuate behind, with the posterior termination rounded. Upper labials 8, the 3rd, 4th and 5th entering the orbit. Loreal small, longer than high. One præocular, just reaching the upper surface of the head; 2 postoculars. Temporals irregular. Two elongate chin shields of about equal length, the anterior in contact with 5 lower labials.

*Colour* in spirit, evidently somewhat faded. The body is surrounded by alternating dusky and light rings with very irregular crooked margins. Head above dusky olivaceous with pale spots in the middle of most of the shields; upper labials and anterior lower labials pale with dusky margins. An imperfect pale collar behind the head: all the lower part of the head and neck whitish. There are 30 pale rings on the body, the first pale ring imperfect above, and the dark patch in front not continuous across the throat, the rest of the rings encircle the animal. Farther back the pale rings become grey with pale margins and light spots occur in the dark rings. On the belly, throughout the anterior part of the body, the dark rings are only about half as broad as the white, above the difference is less, and near the head the dark rings are much broader above than the white. There are 16 rings on the tail.

This snake is distinguished from all other species of *Ophites* by having 19 instead of 17 rows of scales round the body. It approaches nearest to *O. septentrionalis*\*, the precise habitat of which is unknown, but is probably the Himalayas or Assam, the type specimen having been collected by Dr. Jerdon soon before his departure from India, and found unlabelled amongst his collections after his death. From *O. septentrionalis* the present species appears to be distinguished by more numerous scales, by its differently shaped anterior frontals, and by the dark rings extending across the belly.

A single specimen was procured by Mr. Gammie at the Cinchona plantation in South-eastern Sikkim. This specimen measures  $31\frac{1}{2}$  inches, of which the tail is 7. It is rather surprising to find a new snake in so well explored a locality.

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 VIII.—*Notes on the Earthquake in the Punjab of March 2nd, 1878.*—  
 By A. B. WYNNE, F. G. S.

(Read 5th June.)

Earthquakes in the Punjab are not uncommon, but little effort seems to have been made to record their occurrence in any way that might prove useful; indeed as a rule they are neither sufficiently frequent nor pronounced to leave more than a passing impression, though the directions from which the undulations come are occasionally noticeable, and doubtless, with proper appliances, they would form an interesting study.

On the 2nd of last March the most severe shock which has occurred within the memory of the present generation, so far as I can learn, affected the whole of the northern part of the province. With regard to it I have collected a few notes which I offer more as a record of the event than as

\* Günther, P. Z. S., 1875, p. 233.